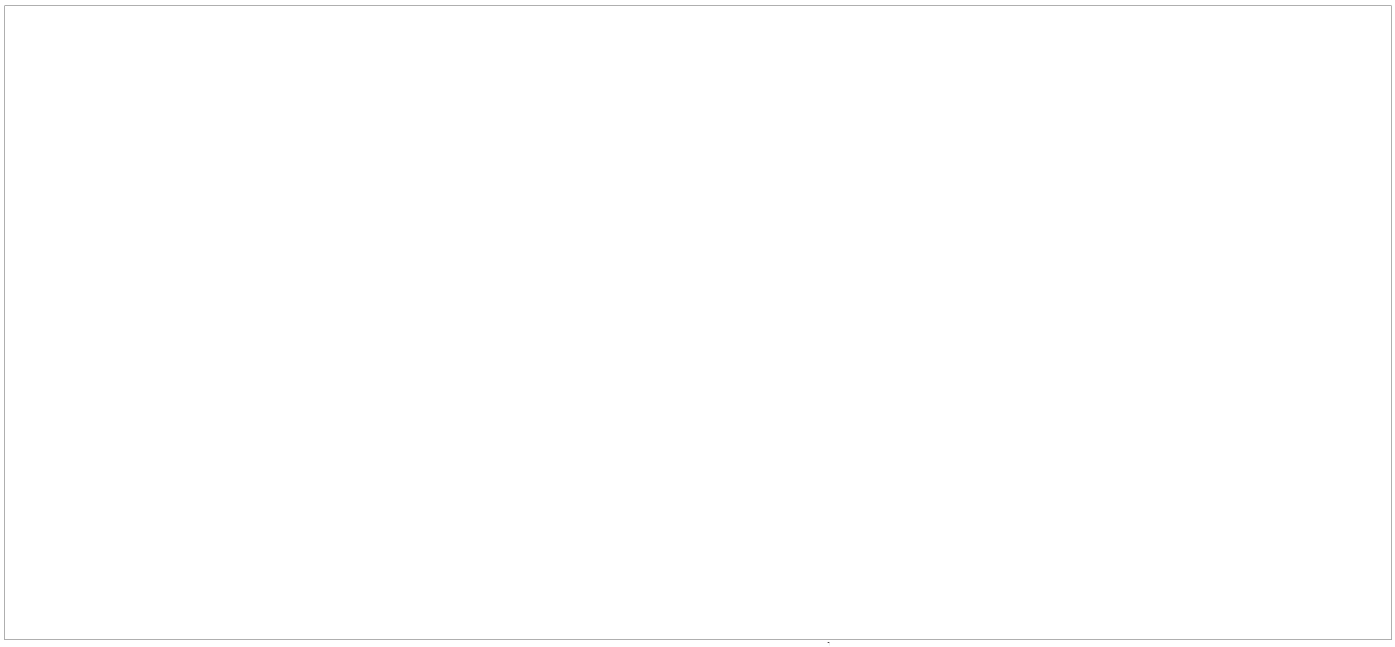

Title: NEW CHARTS OF THE GEOMAGNETIC FIELD OF CHINA by Chu Kang-k'un

Source: Chung-kuo K'o-hsueh, Vol No 1, Chinese monthly periodical

NEW CHARTS OF THE GEOMAGNETIC FIELD OF CHINA

By Chu Kang-k'un (1), [numbers refer to appended characters], of the Institute of Geophysics of the China Academy of Science (2).

Outline (as requested)

Section 1.

Symbols employed, (4) with English equivalents. If any three of the factors or dimensions given are known, the others may be calculated. Mention is made of general facts and conditions, which are presumably well-known to students in this field.

Section 2.

Observations of geomagnetism in China.

Although the Chinese invented the magnetic compass more than 2000 years ago, they made little scientific application of it. Most of the scientific magnetic observations in China until recently have been made by foreigners. The author then lists the chief workers and their principal contributions in this field, based on a study by Ch'en Tsung-ch'i (5), entitled "A general discussion of geomagnetic observations in China," (6), published by the former Academia Sinica, Nanking (7), in its publication of learned papers, "Chung-yang Yen-chiu"

Yuan Hsueh-hsiu Hui-k'an (S), Vol I, No 2, 1944.

Among the matters mentioned in this connection were the facts that hitherto the principal work in China in this field was done by the French Roman Catholics at Zi-ka-wei (Hsu-chia-hui) (9), Shanghai, by the Germans and Japanese at Tsing tao, by the British in Hong Kong, by the Carnegie Institution of Washington, and by the Chinese in Nanking from 1933-1/3[illegible]. After various vicissitudes since 1937, the latter station for the study of terrestrial magnetism is now under the direction of the China Academy of Science, and is in process of rehabilitation. The author states that the most important work along this line has been done by the Department of Terrestrial Magnetism of the Carnegie Institution of Washington, D.C., which sent expeditions to China between 1906 and 1930, prominent in which were C. K. Edmunds, O.C. Sowers, F.C. Brown, and a Chinese, C.T. Kwei. Reference is made to the latter department's Pub. No. 175, Volumes 1, 2, 3, 4, 5, 6 and 8.

Section 3

Compilation of Observational Data

The material in this section appears to be of a general nature, and deals with the task of compiling the data produced by various workers in this field. Mention is made of such factors as instruments, disturbances probably due to sun-spots, 11 year cycles, annual variations, etc.

Section 4

Geomagnetic Charts of China and of the whole globe

Using data referred to in Section 2 above, in accordance with the principles referred to in Section 3 above, various kinds of isomagnetic

CONF[illegible]

charts of China have been made which indicate the changing features of China's main magnetic field.

Apart from 9 isoporic charts previously made, three charts were made in 1937, at the Zi-ka-wei Station by M. Gurgand, S. J, and Fr. A. T. Lou., of Carte magnetique de Chine: Etude sur le Magnetisme Terrestre, Etude 40, Fasicule X, Observatoire de Zi-ka-wei, Shanghai. These three charts used available data up to 1930, and dealt respectively with (a) lines of equal declination, (b) lines of equal horizontal intensity, (c) lines of equal vertical intensity.

Also of great value to the author was the Carnegie Institution's publication No. 578, of 1947 which contained an article by Dr. E. H. Vestine and others entitled: "A Description of the Earth's Main Magnetic Field and its Secular Change, 1905-1945."

This article contained four sets, for the years May 1912, May 1922, May 1938, and May 1942, of seven isoporic charts of the world showing respectively seven geomagnetic elements; and in addition, main-field charts for the year 1945, and tables of readings for each 5 degrees or 10 degrees of latitude and longitude, from which geomagnetic charts of particular areas could be made.

Section 5

New Geomagnetic Charts of East Asia.

Using data from the tables in Dr. Vestine's volumes, (Carnegie Intitution's publication No. 175), and data gathered by Chinese workers as appearing in an article entitled Geomagnetic Survey in S W China, 1940-1943, by C.L. Liu and S.F. Lee, and in an article entitled

"Preliminary Report on Results of Geomagnetic Survey in China, 1946-1947, by C. Parker Chen and C.L. Liu, both of which are found in the Journal of the Chinese Geographic Society, (10) Nanking Vol 11, No 1, 1946, the author (Chu Kang-k'un) prepared 4 charts, embodying data up to 1945, of the East Asia Geomagnetic Field.

These charts, which are appended to this article, indicate, respectively:

(1) the lines of equal declination,

(2) the lines of equal horizontal intensity, in CGS units,

(3) the lines of equal vertical intensity, in CGS units,

(4) the lines of equal inclination.

Preparation completed 20 May 1946 at the University of the Revolution, in Peiping.

/Then follow the four new Chinese geomagnetic charts./

Appendix

References:

(1)

(2)

(3)

(4) The symbols used in the article with their English equivalents are as follows:

F - total magnetic intensity

H - horizontal intensity.

Z - vertical intensity

X - geomagnetic north component

Y - geomagnetic east component

I - inclination, or dip

D - declination.

(5) 陳宗器

(6) 中國境內地磁觀測之總檢討

(7) 中央研究院

(8) 中[illegible]學[illegible]

(9) 徐[illegible]

(10) 中國地[illegible]協會

(11) - Notes on Terrestial Magnetism, by S. Chapman, in the publication Terrestrial Magnetism, Vol 45, 46, 47, 1940-1942.

(12) see note 4 above

(13) 北京[illegible]

- END -

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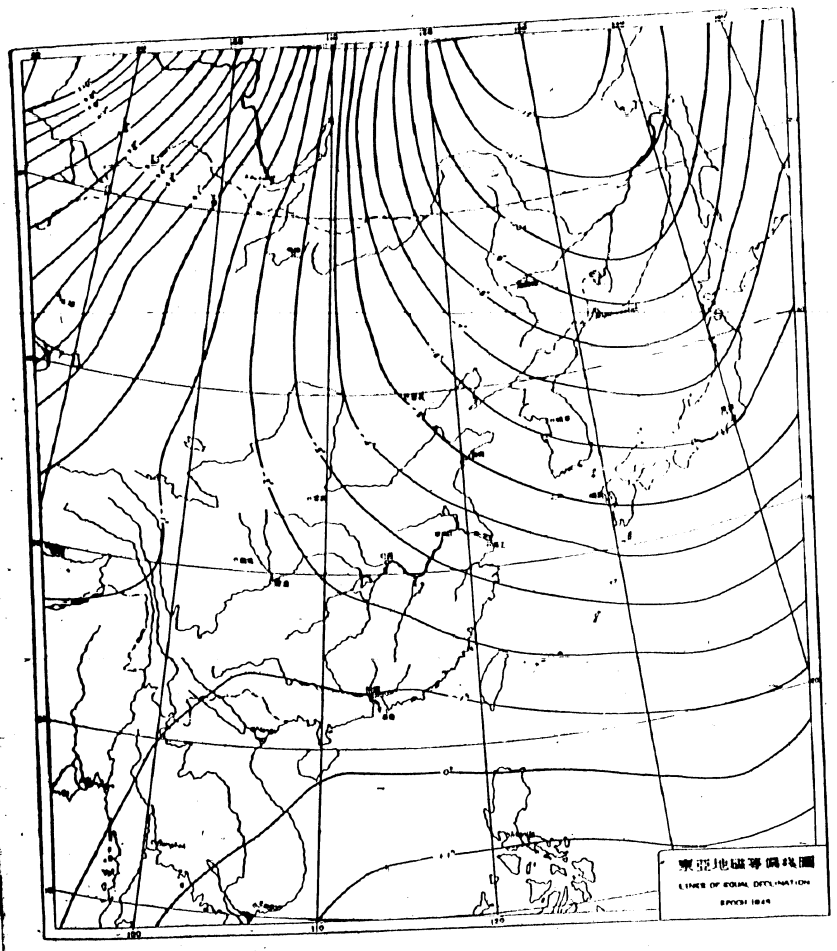


圖 一

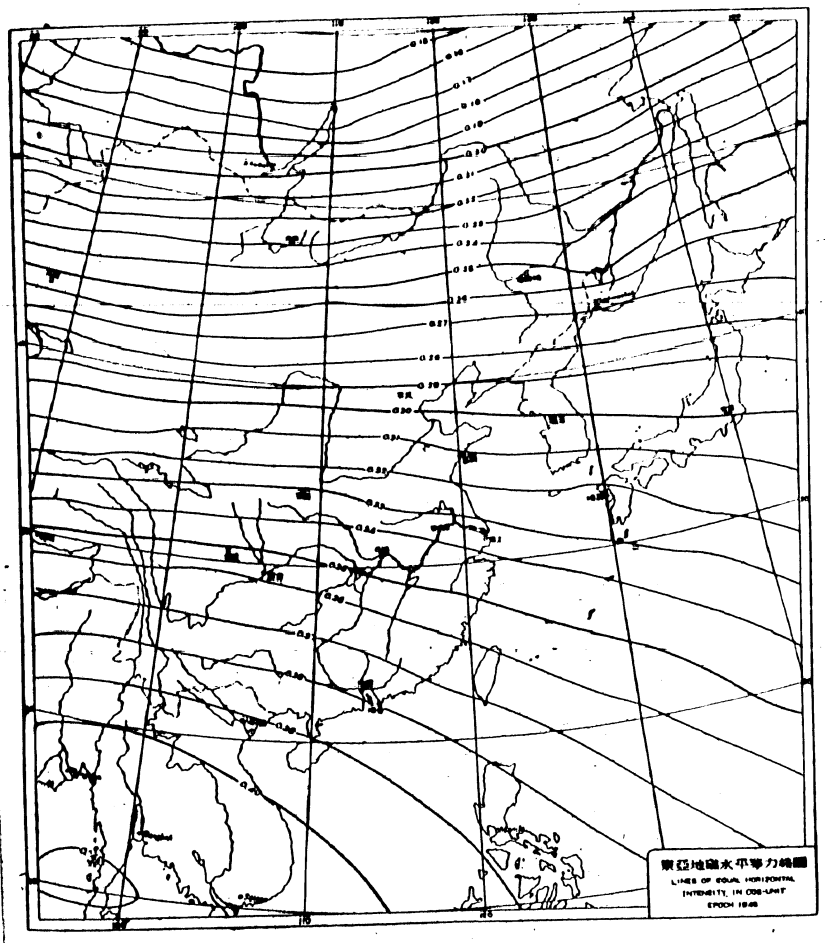
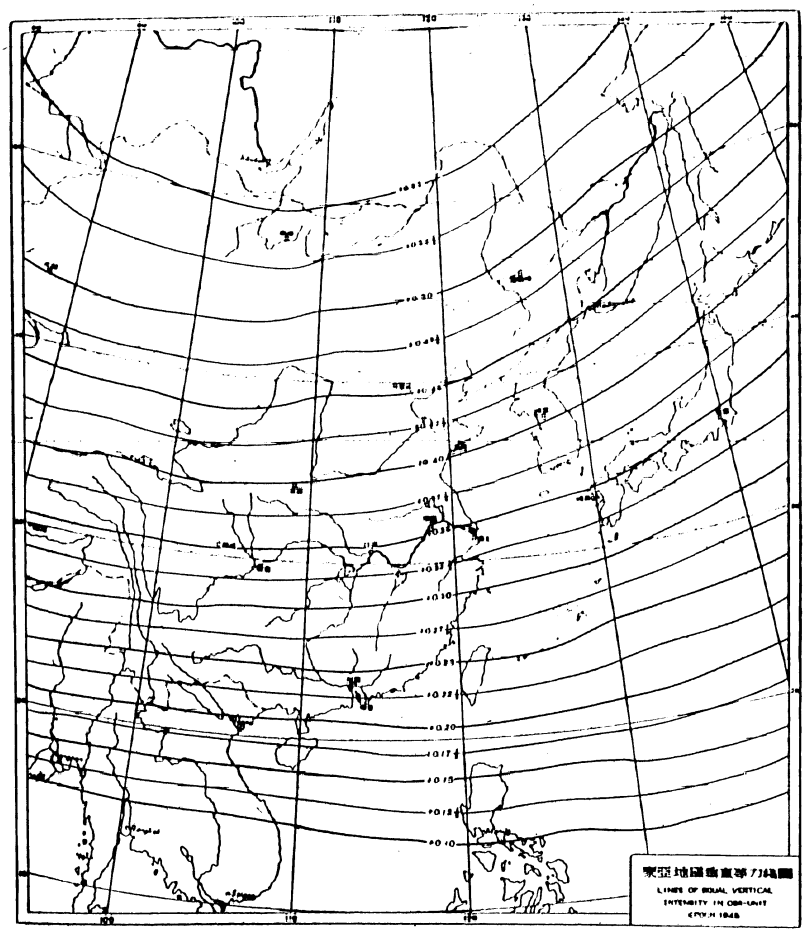


圖 二



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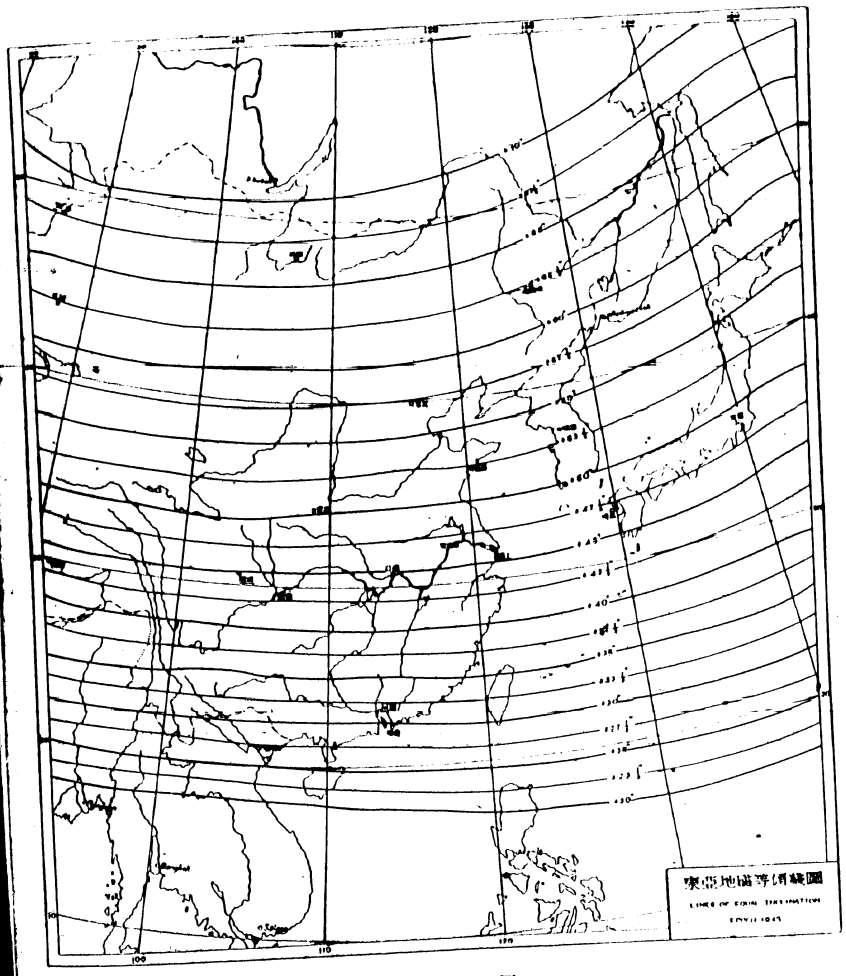

圖 四